

**IN THE ABSTRACT**

Substitute the Abstract on the attached separate page.

## **ABSTRACT**

An optical element has of a set a plurality of three-dimensional cells. A specific amplitude and a specific phase are defined in each individual cell. Each cell has a concave part formed by hollowing a part having an area corresponding to the specific amplitude by a depth corresponding to the specific phase. The individual cell has a specific optical property so that, when incident light is provided to the cell, emission light is obtained by changing an amplitude and a phase of the incident light in accordance with the specific amplitude and specific phase defined in the cell.